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From Digital Aesthetics towards General Communication Theory

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Published in:
Nordic Journal of Media Studies

Publication date:
2007

Document version
Early version, also known as pre-print

Citation for published version (APA):
Jensen, K. B. (2007). Mixed Media: From Digital Aesthetics towards General Communication Theory. *Nordic Journal of Media Studies*, 5, 7-24.

Mixed media: from digital aesthetics towards general communication theory

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Abstract

During the last decade, many studies have reconsidered the definition of 'media', frequently emphasizing how 'new' digital media may be reproducing or reformulating 'old' analogue media. Through a critical examination of two key contributions – Bolter and Grusin (1999) on remediation and Manovich (2001) on the language of new media – this article suggests that much current work under a heading of 'digital aesthetics', approaching media as modes of representing reality, rather than as resources for acting in and on reality, is missing not one, but two opportunities – one of exploring interactivity at the level of meaning as received and interpreted, the other of specifying how the discourses of digital media enter into social interaction beyond the interface. Digital media should be understood in the wider context of general communication theory, including issues of 'mediated' and 'unmediated' social interaction.

Keywords

Action
 Communication theory
 Digital media
 History of communication
 Modality

Introduction

In 1996, one of the world's main professional organizations for communication research changed its name. The abbreviation, IAMCR, which used to denote the International Association for *Mass Communication* Research, came to refer to the International Association for *Media and Communication* Research. Founded in 1957, at a time when the 'old' mass media, with television at the forefront, were consolidating themselves as social institutions, the IAMCR, like communication research at large, was coming to terms with another major shift in its object of analysis. New media of the digital and interactive variety had challenged the field of research to reconsider the very definition of (mass) communication and (mass) media. During the ten years since 1996, a wide variety of studies have addressed this foundational issue, frequently emphasizing the question of how 'new' media may be reproducing or reformulating 'old' media. This article reviews some of the answers, identifying disciplinary as well as ideological fault lines, and proposing an agenda for continued interdisciplinary theory development.

In his important history of the idea of communication, John Durham Peters showed how communication as a general category, including face-to-face interaction, 'became thinkable only in the shadow of mediated communication. Mass communication came first' (Peters 1999: 6). During the past few decades, the ongoing differentiation of mediated forms of communication appears to have made a general category of media

thinkable, as well. As in the case of communication, the reconceptualization of 'media' involves reconsideration, not just of information and communication technologies, but of the very distinctions and interrelations between humans, technological artefacts, and social contexts. The mass media, arguably, came first. At present, research is struggling to explain what comes after mass media.

Following a brief genealogy of the concept of media, this article departs from two key contributions to recent media theory – Bolter and Grusin (1999) on *remediation* and Manovich (2001) on the *language of new media* – which provided some of the first comprehensive and most widely influential accounts of how the discursive forms of new media differ from those of old media. A critical analysis of the two volumes serves to identify a premise that is commonly shared in much current work under a heading of 'digital aesthetics', approaching media as modes of representing reality, rather than as resources for acting in and on reality. This article suggests that such a premise may lead the broadly humanistic, text-oriented stream of media and communication research to miss not one, but two opportunities in the face of new media – one of exploring interactivity at the level of meaning as received and interpreted, the other of specifying how the discourses of digital media enter into social interaction beyond the interface.

The last part of this article outlines an approach to reinserting digital aesthetics into general communication theory, drawing on a wider repertoire of (new) media studies. First, while media show and tell, they also enable their users to do things in the world. All media, new and old, are vehicles of *information*, channels of *communication*, and means of both interpersonal and institutionally organized *action*. Second, no medium is created equal to any other in all of these respects, having been shaped in an interplay of the modalities of human experience, the historically available technologies, and the institutional conditions of communication. In order to locate new media within contemporary culture, the final section distinguishes three prototypes of media, each of which is programmable to different degrees and in different respects, including a very old medium – humans communicating in the flesh (Lakoff and Johnson 1999).

The means in the middle

The *Oxford English Dictionary Online (OED)* (accessed 5 January 2006) notes that while classical Latin 'medium' referred to some middle entity or state, in post-classical Latin and in British sources from the twelfth century onwards, 'medium' and 'media' also came to denote the *means* of doing something. On the one hand, a medium can be understood as a more or less incidental presence, linking natural phenomena or, for the spiritually inclined, this world and the hereafter. On the other hand, a medium can serve as an intentional instrument of human action in a modern sense. In the latter respect, the *OED* distinguishes two conceptions – medium as an artistic modality, material, or technique; and medium as a channel of mass communication – both of them from the mid-nineteenth century, when the idea of communication took hold (Peters 1999). By the mid-twentieth century, medium in the sense of 'any physical material (as tape, disk, paper, etc.) used for recording or reproducing data, images, or sound' became common, presumably accelerated by digital media with diverse input and

output options. All three senses – mode of expression, material of recording, and means of transmission – can be retraced in the media-studies literature. In order to understand what are increasingly hybrid or mixed media, it is helpful to begin to unmix definitions of media.

In his *Keywords* (1983), Raymond Williams reminded researchers that the changing meanings of, for instance, ‘media’ bear witness to the cultures using (and studying) them. Williams himself noted three senses of medium, including a middle entity and a technical means of transmission, adding ‘the specialized capitalist sense’ in which it is ‘a medium for something else, such as advertising’ (Williams 1983: 203). With or without the critical twist, the term has remained not just contested, but ambiguous. In a recent overview, Ryan (2004: 16) noted the persistence in parallel of the two mid-nineteenth-century senses – mode of expression and means of transmission. Whereas social scientists commonly give priority to media as technological and institutional infrastructures (means of transmission), scholars originating from the arts and humanities still tend to privilege media discourses as aesthetic forms (modes of expression). Digital media provide one more opportunity for research to consider the potential of an interdisciplinary, integrative ‘third culture’ (Brockman 1995) of media studies. One of the first movers behind the personal computer, Alan Kay, early on compared computing to music-making (Kay 1999: 129).

Comparing phenomena such as media is the business of scholarship. According to Beniger (1992: 35), ‘all social science research is comparative’ because it compares across time, space, cultures, individuals – and media. Scholarly comparisons, in turn, depend on the available concepts and theories for the job, which vary with historical context. It was not until the early 1960s that ‘the media’ presented themselves as one phenomenon (Scannell 2002: 194), the elements of which called for comparative analyses. Since the seminal contributions of Marshall McLuhan (1962, 1964), research has been expected to account for different media in terms of their distinctive and complementary contributions to contemporary culture. Also outside academia, it is a common assumption that the media make up a networked cultural environment that conditions and frames social interaction as well as individual existence. As such, the media constitute the publicly accessible components of the contemporary control society (Beniger 1986), which is increasingly dependent on information and communication technologies to regulate and reproduce itself. Regardless of terminology – control, information, media, or network society (Castells 1996) – social and cultural theory is asking how material networks of communication afford and constrain imagined networks (Anderson 1991).

The material channels of communication set the terms for *who* knows *what* and *when* (Rogers 1962); the prevalent modes of expression shape *how* people come to know. While research on *who*, *what*, and *when* in the ‘social shaping and social consequences’ (Lievrouw and Livingstone 2002) of new media still predominates, the *how* of communication has preoccupied a great deal of new-media theory, yielding findings with an audience far beyond the arts and humanities, and into engineering circles and boardrooms. The ongoing differentiation of media formats is challenging traditional transmission models of communication – corporate

research entities can no longer depend on old-style development processes, from lab to launch, in the attempt to generate context-sensitive and, hence, viable products and services. Enter ordinary users, creative artists, and digital aesthetics.

Remediation revisited

Situated within a historical perspective of medium theory (Meyrowitz 1994), emphasizing the implications of shifting media forms for human consciousness and culture, the volume by Bolter and Grusin (1999) offered a vocabulary in which to examine new media discourses. Citing McLuhan's famous quip, that 'the "content" of any medium is always another medium', the authors set out to specify 'a more complex process of borrowing', rejecting any 'simple repurposing' of one medium in another. To Bolter and Grusin, instead, 'one medium is incorporated or represented in another'. As it turns out, this terminology provides a key to the theoretical argument – small discursive differences make a difference, in metatheory as in media discourse. A few lines on, representation is preferred over incorporation in a central definition: 'we call the representation of one medium in another *remediation*, and we will argue that remediation is a defining characteristic of the new digital media' [original emphasis] (Bolter and Grusin 1999: 45). Whereas incorporation might suggest functional integration, representation rather privileges formal simulation – surface versus substance.

Remediation manifests itself, according to Bolter and Grusin, as a dual logic involving two general forms of representation, namely, immediacy and hypermediacy. Immediacy is the transparency of media as windows on the world, informed by 'the belief in some necessary contact point between the medium and what it represents' (Bolter and Grusin 1999: 30), and exemplified by linear perspective as well as photorealist computer graphics. Hypermediacy, in contrast, interferes with the subject's line of sight, as in modernist art seeking to defamiliarize the spectator's comprehension of what is being represented, not least through the form of the artwork. In an art-historical perspective, the authors note, 'the logic of immediacy has perhaps been dominant in Western representation', and at the end of the twentieth century, hypermediacy still was in a subordinate position, even if it 'has never been suppressed fully or for long periods of time' (Bolter and Grusin 1999: 34). The central accomplishment of the volume was the application of this dual logic in a series of close analyses of new media genres and discourses – from digital photography to virtual worlds – through a non-sectarian postmodernist lens of study. In subsequent publications, Bolter has extended some of the points to design practices (Bolter and Gromala 2003), as well as reconceiving his 'history of writing' (Bolter 1991) in a second edition with a subtitle referring to 'the remediation of print' (Bolter 2001).

Acknowledging that 'the computational device' only became a medium when it acquired aesthetic forms and 'social and cultural functions', Bolter and Grusin (1999: 66) were early contributors to that growing body of research that has challenged commercial as well as scientific hype assuming the technological determination of culture and society, what Carey and Quirk (1988) referred to as a fascination with the technological

sublime. As a theory for interpreting and explaining such social and cultural functions, however, for 'understanding new media' – the subtitle of the book – *Remediation* presented several ambiguities.

The first issue concerns the *systematics* of the theoretical framework. Elaborating on the relationship between media and remediation, Bolter and Grusin (1999: 65) offer 'this simple definition: a medium is that which remediates'. But, media do not merely or primarily represent each other. And, if remediation is, indeed, the defining characteristic of new media, it is not clear what old media used to do. In some passages, the authors seem hard pressed to defend an immanent analysis of media representations, for example, when they assert that 'there is nothing prior to or outside the act of mediation' (Bolter and Grusin 1999: 58). A few sections do consider material, economic, and other social aspects of media, in part to claim a parallel space for aesthetic and formal studies:

The social dimension of immediacy and hypermediacy is as important as their formal and technical dimensions. However, there is no need to deny the importance of the latter in order to appreciate the former, no need to reduce the technical and psychological dimensions to the social.

(Bolter and Grusin 1999: 73)

Still, the theory of remediation tends to choose sides, inviting an analytical gaze at the surface of the interface, bracketing technologies, users, and social contexts.

Second, the place of *history* – the history of media, but also the history of explanatory concepts – is in question. In support of the previous argument, that media are essentially remediators, it is said that 'a medium in our culture can never operate in isolation' (Bolter and Grusin 1999: 70). Yet, the analytical examples in the volume cover much of the history of western arts, raising questions of whether it might not be necessary to consider several different kinds of remediation – discursive, technological, and institutional – in order to capture the processes by which human experience has been shaped and cumulated through shifting media forms. Bolter and Grusin do recognize the historical contingency of their approach, to such a degree, in fact, that readers may wonder what kind of explanatory value is being assigned to the framework. Having emphatically subordinated *objects* to representations as the field of study, the authors next relativize the *concepts* that serve as their lens of study. What remains, appears to be a set of ad hoc analytical surfaces or *terms* – with immediacy and hypermediacy as the central nodes – regarding the things people do with media: 'we see ourselves today in and through our available media' (Bolter and Grusin 1999: 231). Importantly, *we* are meant to include researchers trying to make sense of the media and signs of our times. *Today* amounts to a rather brief window of opportunity through which contemporary media provide access to cultural history: 'at this extended historical moment, all current media function as remediators and [...] remediation offers us a means of interpreting the work of earlier media as well' (Bolter and Grusin 1999: 55). Surely, the framework of *Remediation*, elaborating insights from Russian formalism onwards concerning the (de)familiarizing functions of media, has more lasting relevance; the

question is how its internalist perspective may be complemented to substantiate conclusions beyond the discourses of the media that are new here and now.

A final, related ambiguity has to do with the *pragmatics* of remediation – what are the claims being made regarding the effects or implications of new media? Bolter and Grusin go on to draw quite far-reaching inferences about the impact of new media on users in terms of a ‘remediated self’ (Bolter and Grusin 1999: 230). They further identify a ‘psychological economy of remediation’ (Bolter and Grusin 1999: 236), which is grounded in the processes and stages of Lacanian psychoanalysis. While this is in keeping with the tradition of textual media studies spanning art history, film theory, and digital aesthetics, which infers from media representations to audience responses, the line of argument appears problematic if one seeks to account for the distinctive features of specific historical media forms. In some sections, the authors briefly consider other positions, including what amounts to an alternative hypothesis, namely, that immediacy and hypermediacy might constitute different aspects or moments of one reception process. This is suggested by evidence presented by, for example, Messaris (1994: 73), that non-western spectators quickly learn to interpret and ‘see through’ unfamiliar, hypermediated images. The relative merits of this and other approaches, however, are not pursued. In an additional reference to the psychological experiments by Reeves and Nass (1996), showing that people relate to media in the same way that they relate to other people, Bolter and Grusin (1999: 58) find that this ‘supports and complements our contention that media and reality are inseparable’. Given the radically different epistemologies and methodologies of the two approaches, it remains to be seen in which senses media and reality might be inseparable.

On the dustjacket of *Remediation* (1999), the reader learns that the volume challenges ‘the modernist myth of the new’ assuming that new media require ‘a new set of aesthetic and cultural principles’. Cover texts are not necessarily penned by authors; ‘modernist’ is a contested term. In reference to *modernity*, the text nicely captures the historically reflexive perspective of the volume on media as open-ended cultural forms. In reference to *modernism*, however, the premise concerning the dual logic of immediacy and hypermediacy, operative since at least the Renaissance (Bolter and Grusin 1999: 21), embraces rather than challenges the modernist mainstream of contemporary art history and (digital) media aesthetics, seeking new insights and, perhaps, new forms of social organization in the cracks and crevices of aesthetic artefacts. *Remediation*, similarly, depends on internalist perspectives on media in order to substantiate conclusions about cultural history as well as audience psychology. New-media studies need perspectives gazing through the interface in both directions – into machines and humans in context.

The functionalities of new media

Approaching the machine architecture behind the computer interface, Manovich’s *The Language of New Media* (2001) offered another important contribution to new-media theory. Preparing his agenda for computer aesthetics, Manovich identifies five principles of new, digital media. First,

regardless of their immediate appearance, they are the product of *numerical representation* or digital code. Second, new media are subject to *modularity* on a different scale than analogue media, being recomposable at the site of production as well as in the context of use. Third, these first two principles allow for 'the *automation* of many operations', be it 'creation, manipulation, or access' [emphasis added] (Manovich 2001: 32). Fourth, a further consequence of numerical and modular computing is *variability*, for example, interactivity as a form of user-driven variability. Fifth, new media enable cultural *transcoding*, or a translation back and forth between 'a cultural layer' of familiar objects in recognizable forms and 'a computer layer' processing these according to a digital common denominator (Manovich 2001: 46). To Manovich (2001: 45), this is 'what is in my view the most substantial consequence of the computerization of media'. It is also where his position has the strongest affinities to that of Bolter and Grusin: transcoding and remediation have a family resemblance, even if they do not share all the same theoretical ancestors. Manovich cites Bolter and Grusin approvingly when he, too, seeks to distance his position from 'a modernist view that aims to define the essential properties of every medium' and from 'old metaphors' concerning interfaces in traditional human-computer interaction research (Manovich 2001: 89).

Manovich's argument joins two components 'that today can be found in most areas of new media'. On the one hand, both the Internet and computers as such constitute a *database*, 'a collection of documents', that has been taken to a different, digital degree. On the other hand, access to the database takes place through 'a navigable space', specified as 'a virtual interactive 3D space, employed in computer games, motion rides, VR, computer animation, and human-computer interfaces' (Manovich 2001: 214). One of Manovich's main points is that display and narrative are becoming less central in new media, compared to their role in classical arts and traditional mass media. In Manovich's strong formulation (2001: 225), 'database and narrative are natural enemies', even if he recognizes that digital narratives result from the user's interaction with games or interactive fiction. Perhaps database and narrative were cultural enemies in some previous media. Digital media facilitate links between databases and interfaces, which further enable users to communicate and act.

The links between the two constituents of new media, however, are understood less as means of doing than as ways of showing. From Manovich's perspective, cinema is experiencing a second coming as a model of digital representation: 'To summarize, *the visual culture of a computer age is cinematographic in its appearance, digital on the level of its material, and computational (i.e., software driven) in its logic*' [original emphasis] (Manovich 2001: 180). Even intuitively, however, it is questionable whether cinema, in some definition, can account for the range of representations in computer interfaces. The GUI (graphic user interface) is clearly home to variants of cinema, television, and video; it is also a point of access to other virtual 3D spaces. But, cinematography is hardly a sufficient principle when it comes to matters of, for example, the layout or navigation of a database.

In the last part of the volume, Manovich elaborates on his conception of cinematography and film theory, as informed by aesthetics and semiotics.

With reference to the basic semiotic matrix of paradigms and syntagms, he argues that even if interactive interfaces present users with several simultaneous paradigms from which to choose, 'the end result is a linear sequence of screens that [...] unfolds along a syntagmatic dimension'. The resulting syntagms are described, further, as a 'language-like sequencing' which, to Manovich, suggests that new media 'follow the dominant semiological order of the twentieth century – that of cinema' (Manovich 2001: 232). Leaving aside the issue of whether cinema might qualify as *the* dominant cultural order of the last century, again it is intuitively far from clear that the common experience of watching several screen images, interstitched by paradigmatic choices, resembles anything like cinema, or television, or animation, for that matter. In theoretical terms, moreover, it is quite a stretch to batch verbal language and computer interfaces with cinema as sequential vehicles of meaning under a heading of 'language-like' characteristics. Especially against the background of film theory, which has had notorious struggles with the metaphor of film as language (Metz 1974), it is surprising to find the metaphor reinstated at this level of generality for the field of new-media studies.

In specific analyses of interactive genres, especially games, the volume does recognize the various communicative interchanges linking system and users, beyond their cinematic identity as spectators gazing at silver and other screens. In a key section examining the ways in which database and interface map onto each other during an interchange, Manovich begins to focus the performative aspect of using new media. Having noted the potential conflict between efficient access to information and the users' psychological involvement, he generalizes the point in italics: *'Along with surface versus depth, the opposition between information and "immersion" can be thought of as a particular expression of the more general opposition characteristic of new media – between action and representation'* (Manovich 2001: 216). The implication seems to be that the category of action is associated with immersion or engagement – virtual action. Action in the sense of interactivity with a database of content, with other users, or with the system of communication itself, is not theorized explicitly and on a par with the other pole of 'the more general opposition' of new media – representation. And, the everyday actions that people perform with computers – from social networking and netbanking, to cultural engagement and political mobilization – fall outside the perspective of this cinematographic theory of new media.

Compared to the approach of Bolter and Grusin, Manovich appears relatively more cautious in inferring from media formats to their consequences for users and historical contexts. Still, in addition to conceiving of cinema as the dominant cultural code of the last century, he also assumes that cinema holds the key to understanding twenty-first-century media, returning in his last chapter to André Bazin's question, 'What is cinema?' Manovich's answer is that what we used to think of as 'cinema's defining characteristics are now just default options, with many others available' (Manovich 2001: 293). More ambitiously, cinema is taken to provide both the default option and the source code for other options. Having reviewed how cinema was born from animation, which then became marginalized, the author restates the question, 'What is digital

cinema?': '*Digital cinema is a particular case of animation that uses live-action footage as one of its many elements*' [original emphasis] (Manovich 2001: 302), a notion that Manovich has explored in a creative project on 'soft cinema' (Manovich and Kratky 2005). Most important perhaps, a particular subset of cinema is said to triumph with the computer:

One general effect of the digital revolution is that avant-garde aesthetic strategies came to be embedded in the commands and interface metaphors of computer software. In short, the avant-garde became materialized in a computer [...] collage reemerged as the 'cut-and-paste' command, the most basic operation one can perform on digital data.

(Manovich 2001: 306f)

Modernism is back, not just as aesthetic logic, but as technological form.

On the very last page of the book, Manovich adds that 'cinema, along with other established cultural forms, indeed becomes precisely a code. It is now used to communicate all types of data and experiences, and its language is encoded in the interfaces and defaults of software programs and in the hardware itself' (Manovich 2001: 333). Leaving aside again the strong and surprising claim that cinema is already encoded in the *hardware* of computers, the present discussion has suggested that cinema will account for only certain dimensions of how digital media articulate information, enable communication, and facilitate action. Cinema, undoubtedly, is the source of some subset of the codes that are currently being reworked in the *software* of digital media. Cinema may, or may not, have a language. But, it is the functionalities and practices that link databases and users via interfaces that a theory of new media, above all, must account for. Manovich and Bolter and Grusin, in related ways, have begun to explore how new media show and tell at the interface. Media also do things beyond the interface.

Media showing, telling, and doing

The position of digital aesthetics, as informed by cinematography and art history in the works of Manovich and of Bolter and Grusin, can be summarized with reference to recent interdisciplinary research that focuses, not on visuals, but on sound (Bull and Back 2003). Sound serves as a reminder concerning the multimodal nature of new media and human communication as such. Examining sound in cinema and other screen media, Chion (1994) identified three modes of listening. *Causal* listening seeks the source of a sound, for example, a human voice. *Semantic* listening interprets its message in terms of a code, i.e. a particular verbal statement. And, *reduced* listening, a term coined by Pierre Schaeffer, focuses on 'the traits of the sound itself, independent of its cause and of its meaning [...] its own qualities of timbre and texture' (Chion 1994: 29–31). In real-life settings, causal and semantic listening can be expected to predominate; people listen in order to orient themselves and understand events in context. In arts settings, and in the meta-analysis of sound by musicologists or acousticians, reduced listening is the defining practice. Digital aesthetics has given priority to reduced listening and viewing.

Over the last decade, much other research has sought to establish links between the social, technological, and aesthetic aspects of new media (e.g. Bell and Kennedy 2000; Lister et al. 2003), notably studies arising from the Association of Internet Researchers, as reported in the *Internet Research Annual* (2004ff). In order to advance an interdisciplinary dialogue on the several necessary constituents of a theory of new media, it is helpful to return to some of the basics of communication theory. Media are vehicles of *information*; they are channels of *communication*; and they are means of both interpersonal and macrosocial *action* (Jensen, 2006). While all of these remain contested – as terms, concepts, and phenomena – together they offer a set of what Blumer (1954) called ‘sensitizing concepts’ in configuring the domain of inquiry. The conceptual pair of ‘information’ and ‘communication’, first of all, is familiar from several fields of research in various terminological guises. Philosophy traditionally distinguishes between *proposition* and *modality*, i.e. a potential reference and the reality status being assigned to it in an assertion (Audi 1996). In structuralist literary and film theory, *énoncé* covers a work as a statement or message, whereas *énonciation* refers to the act of enunciation (Stam et al. 1992: 105). And, in speech-act theory (Austin 1962; Searle 1969), a distinction was introduced between *locution* (propositional components), *illocution* (a social act being performed, for example, a promise or a threat), and *perlocution* (the received implications of the act). In combination, information and communication enable socially coordinated actions – from discussion and voting, to consumer purchases and investments, to political and aesthetic involvement.

Each of the three constitutive concepts can be exemplified with reference to sound:

- *Information*: Sound serves as an explicit and regularized vehicle of delimited items of information. This is the case in oral narratives, with fire alarms (no warning without an implied object of attention), as well as for jingles and other ‘program music’ that seeks to generate ideas or values in the listener.
- *Communication*: Sound supports intersubjective relations of communication. An oral narrative engages its listeners, young and old. A fire alarm, when activated by a person or by smoke, addresses a warning to the inhabitants of a building. And, program music produces, however tendentially and momentarily, some level of understanding and orientation in the audience.
- *Action*: Sound accomplishes physical as well symbolic actions, over and above the (speech) act being performed in and of communication – sound becomes action as it is embedded in established social practices and institutions. Storytelling is a classic part of primary socialization; fire alarms accomplish evacuations; and program music reactivates imagined communities (Anderson 1991), ranging from nationalism to consumerism.

Media, new and old, enable and constrain these uses, functions, or characteristics in different ways and shifting configurations. *Information* can be thought of as the potential articulation of insights and ideas, lending

itself to externalization and dissemination, through the modalities of human experience and communication technologies of human making; in more formal terms, 'information is data that have been organized and communicated' (Porat 1977: 2). Artworks, digital and otherwise, may be understood as information waiting to make its mark on the world through some medium. *Communication*, next, minimally requires a mode of expression and a channel of transmission, as noted, both of which are programmable in different respects and to varying degrees. The act of communication produces some more or less stable tokens to which two parties make themselves available and, to a degree, internalize. Finally, through informational representation and communicative interaction, the communicators engage in *action*, cumulatively enacting themselves, their significant others, and the social system of which both are components.

This potential widening of the field of media studies next suggests the question: what is *not* a medium? Anthropology, sociology, and other adjoining fields note that people continuously ascribe significance to natural objects, cultural artefacts, and social institutions. Even the boundary between 'nature' and 'culture' is negotiated from a position within culture through the historically available media. As pinpointed by Watzlawick et al. (1967), humans cannot *not* communicate – the body shows itself, and it sounds. Equally, social arrangements from business transactions to interior decorating have, or are given, meanings.

The media that form the objects of analysis for media and communication research are distinguished by their 'programmability', being flexible resources for the articulation of information and communicative interaction as part of social structuration (Giddens 1984). The definition of media in terms of programmability can be specified in three respects. First, media comprise *modalities* that make possible the rendering of and interaction with worlds, past and present, real and imagined. Modalities amount to semiotic registers of verbal language, music, still and moving images, etc. enabling an immensely varied repertoire of discourses and genres, and engaging the human senses in selective and culturally conventional ways. Second, media depend on a material substratum for articulating and presenting information, as commonly associated with modern *technologies* of communication. (The next section considers the human body in context as a medium.) Like modalities, technologies lend themselves to diverse aesthetic and social adjustments – across time, space, and possible worlds. Third, media communicate to, about, and on behalf of social *institutions*. Media and societies mutually shape – programme – each other in the course of prevalent communicative and cultural practices (Meyrowitz 1994). The agenda of new-media studies may be clarified with reference to these three aspects, particularly how the modalities, technologies, and institutions of digital media relate to those of earlier (mediated) communication.

Media of three degrees

The traditional dichotomy of 'mediated' and 'unmediated' communication, as mentioned in the introduction, assumes that the human body does not qualify as a medium of contact and exchange, but somehow communicates directly. As argued by Peters (1999: 264), neither messages nor people have

a simple, immediate presence in the world – even face-to-face ‘dialogue may simply be two people taking turns broadcasting at each other’. With the rise of many more differentiated types of communicative interaction, the dichotomy is increasingly in question. At the present stage of research, it is helpful to distinguish conceptually and analytically between three degrees of media (see further Jensen 2002a, 2006).

Media of the first degree can be defined, briefly, as the biologically based, socially formed resources that enable humans to articulate an understanding of reality, for a particular purpose, and to engage in communication about it with others. The central example is verbal language, or speech, as constitutive of oral cultures and subcultures (e.g. Scribner and Cole 1981) – additional examples include song and other musical expression, dance, drama, painting, and creative arts generally, often relying on comparatively simple, mechanical techniques such as musical instruments and artistic or writing utensils as necessary elements. Importantly, such media depend on the presence of the human body in local time-space. While one might identify (spoken) language, or the human voice, as the medium, it seems helpful to differentiate between, for example, speech and song as media with reference to their different modalities, sharing the same material substratum, but commonly addressing different social institutions, contexts, and practices.

Frequent references to the ongoing ‘mediatization’ of politics and culture tend to obscure the fact that embodied speech, music, and other sounds remain constitutive of everyday life. As noted by one standard textbook of media studies (McQuail 2005: 18), the total number of face-to-face interactions that occur within the micro-coordination of daily life by far outnumber those communicative events that are technologically mediated. Moreover, speech became an integral part of the modern mass media, notably radio and television, further stimulating conversations about and around media (Gumpert and Cathcart 1986; Scannell 1991). Indeed, Ong (1982) argued that the technological re-embedding of speech had produced a new form of ‘secondary orality’. Speech delivers not just the contents, but also many of the forms that have been remodelled as media genres – the town crier as news announcer, the court jester as talk-show host. Theorizing digital media, it is essential to consider not just the reworking of analogue into digital media, whether in the sense of ‘remediation’ or ‘new languages’, but equally the human body as a source and medium of representation and interaction. Compared to a tendency in some cybercultural and digital aesthetics (e.g. Haraway 1997; Hayles 1999; Stone 1991) to discursify the body, it seems time for new-media studies to examine users as historical and biological individuals, not just as abstractions and represented surfaces.

Media of the second degree come under the heading of Benjamin’s technically reproduced and enhanced forms of representation and interaction (1977) which support communication across space and time, irrespective of the presence and number of participants. Whereas Benjamin placed the emphasis on photography, film, and radio, media of the second degree range from early modern examples including the standardized reproduction of religious and political texts by the printing press (Eisenstein 1979), to television and video. The common features are, first,

one-to-one reproduction, storage, and presentation of a particular content and, second, radically extended possibilities for dissemination across time and space. In this regard, the technologies were key to a re-embedding, both of media of the first degree and of people in relation to distant others, issues, and arenas. At the same time, the specific adaptability or programmability of these media had important consequences for major social institutions – from the Catholic Church to the nation state. And, modalities from media of the first degree were reworked – remediated: in radio talk shows, conversation took on new conventions, just as acting styles were adapted from the theatre stage to cinema and television. (A further question is whether handwriting, fixing, for instance, speech and music in comparatively stable forms, should be understood as a separate category of media. In the present context, handwriting is considered within media of the first degree: the production of manuscripts is embodied and local, laborious and error-prone, and their distribution is selective, commonly within established institutions, as supported by oral commentary.)

Media of the third degree are the digitally processed forms of representation and interaction and, accordingly, of particular interest here. Digital technology enables reproduction and recombination of all media of the second degree on a single platform – computers, thus, can be understood as metamedia (Kay and Goldberg 1999) with an unprecedented degree of technical programmability, between as well as within previous media. The central current example is the networked personal computer,

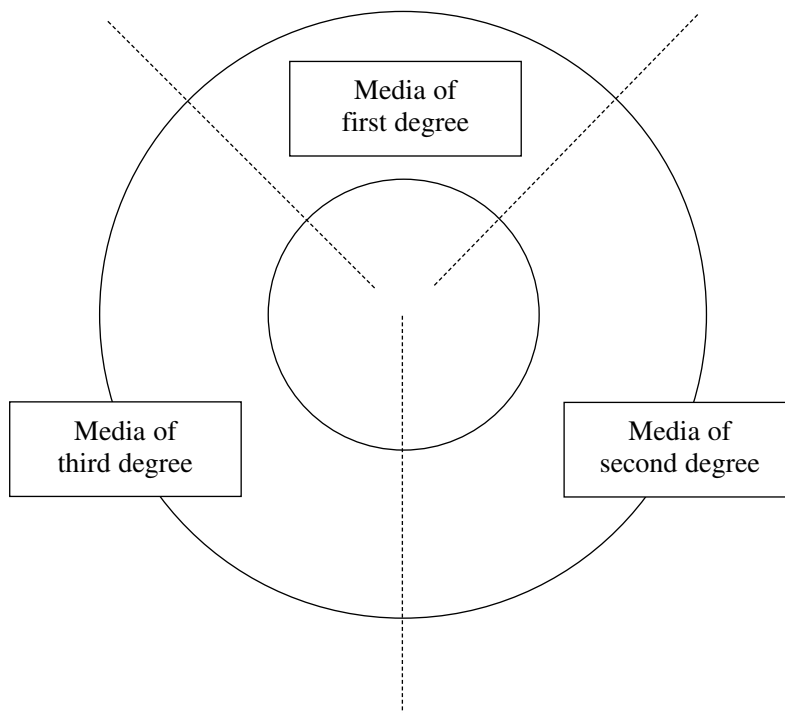


Figure 1: *Media of three degrees.*

although this interface, as well as that of mobile telephones, is likely to change substantially as technologies are adapted further to the human senses, and integrated into both common objects and social arrangements. Whereas classic mass media, such as illustrated magazines and television, combined modalities to a considerable degree, the scale and speed with which digitalization facilitates the incorporation and reconfiguration of second-order modalities, supports the view that already the personal computer may represent a qualitative shift from media of the second degree that is comparable to the shift from first-degree to second-degree media. The interrelations of digital technology and multimodality with the institutions of contemporary society are still in the making, with implications to be determined through empirical research and in historical perspective.

One characteristic of media of the third degree is their re-enactment or simulation of face-to-face interaction. Computer networks enable forms of interaction that are more similar to interpersonal than to mass communication, as exemplified by the informality of e-mail, chat, and gaming. In certain respects, humans are media; in certain respects, digital media can substitute for the social roles of humans. Figure 1 seeks to illustrate the interrelations of the media of three different degrees as a wheel of culture. The media types do not replace each other – they recirculate the forms and contents of shifting cultural traditions, and they remain elements of the same historical media environment. They do, however, constitute different and ascending degrees of combined programmability in terms of adaptable technologies, differentiated modalities, and institutions transcending time, space, and social actors.

While communication has always been pervasive, digital technologies are making information and interaction more accessible and applicable across contexts. Why communicate so much? As noted by Aristotle (Clarke 1990: 11), words allow humans to consider that which is at least temporarily absent – in space, in time, and from one's immediate experience – through thought experiments and dialogue. Media can represent what is absent from, but imagined within, face-to-face encounters, opening up universes of what is not yet, what might be, as well as what ought never to come to pass. Why not communicate less? We cannot *not* communicate (Watzlawick et al. 1967), because we are co-present with others in the real world, and necessarily share a culture. In a discussion of communication and culture in relation to music, Meyer (2001: 348f) noted that we keep social complexity manageable through culture: 'what most significantly shaped human behaviour and gave rise to human cultures was not the presence, but the absence of adequate innate constraints. It is because evolution resulted in such an animal that human cultures became indispensable.' Culture is not icing on the layercake of evolution and history; it is the preliminary outcome of communication in managing extreme social and cognitive complexities for endless practical purposes. We need all the media we can get, occasionally to appreciate their aesthetics, but mostly to get by and go on.

Conclusion

Media and communication research is positioned to renew its theory development, having been challenged by digital technologies to reconsider its core concepts of 'media' and 'communication'. This article has argued for an inclusive agenda, incorporating interdisciplinary concepts and concerns from several decades of humanistic as well as social-scientific research, as well as addressing humans as media. The traditional divides between interpersonal, organizational, and mass communication studies are increasingly counterproductive. Media content itself – from *Frankenstein* (1818) via *Blade Runner* (1982) to current massively multiplayer online role-playing games (MMPORPG) – provides a cultural laboratory regarding the status of humans and the realities about which they communicate. As a second-order laboratory or institution-to-think-with (Jensen 2002b), research – from hard-nosed artificial intelligence (e.g. Boden 1996) via semi-soft actor-network theory (e.g. Latour 1993) to postmodern philosophy dissolving the category of being human (e.g. Hayles 1999) – equally is at pains to define who or what communicates.

'Mixed media' that combine materials in more or less innovative ways are a familiar format in artistic practice and criticism. The aesthetic gaze and the camera eye, as developed by Bolter and Grusin (1999) and by Manovich (2001), are valid perspectives on new, mixed media, as well. Appearing half a decade after the popular breakthrough of the Internet, the two volumes offered some of the first elaborate theories regarding digital technologies as media, and have contributed to digital aesthetics as a separate sub-speciality of study. In order to account for the wider implications of mixed media today, however, as they reconfigure modalities, materials, as well as institutions, digital aesthetics need to reconsider their interfaces with other explanatory models. From within the art domain, the tradition of contemplative appreciation of media and culture has recently been countered, for example, by Summers (2003) in a 'post-formalist art history', which examines the arts as thoroughly practical enterprises in a material environment of really existing media and humans. The larger field of media and communication research itself is ripe with approaches to the texts and contexts of new media, from their role in everyday life (Wellman and Haythornthwaite 2002) and sociocultural communities (Baym 2000) to their place in the infrastructures of economy and politics (Castells 1996). In conjunction, these approaches may begin to address the key question regarding any new medium for policy-makers, business leaders, cultural activists, little boys and, increasingly, little girls: what does it *do*?

If the idea of communication has been a century and a half in the making (Peters 1999), it is not surprising that the definition of media has continued to pose significant challenges for research since the 1960s, as restated by digital media during the 1990s. The media of three degrees provide a framework in which to approach the distinctive affordances (Gibson 1979; Hutchby 2001) of different media, with implications for human communication and action over the *longues durées* of history. Mixed media fill up art museums; metamedia saturate the everyday across platforms and contexts. In order to focus historical and empirical studies of the social uses and implications of new media, further research is needed to unmix theoretical definitions of media.

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